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ENGINEERED PRODUCTS

Since 1968

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ENGINE ADAPTOR
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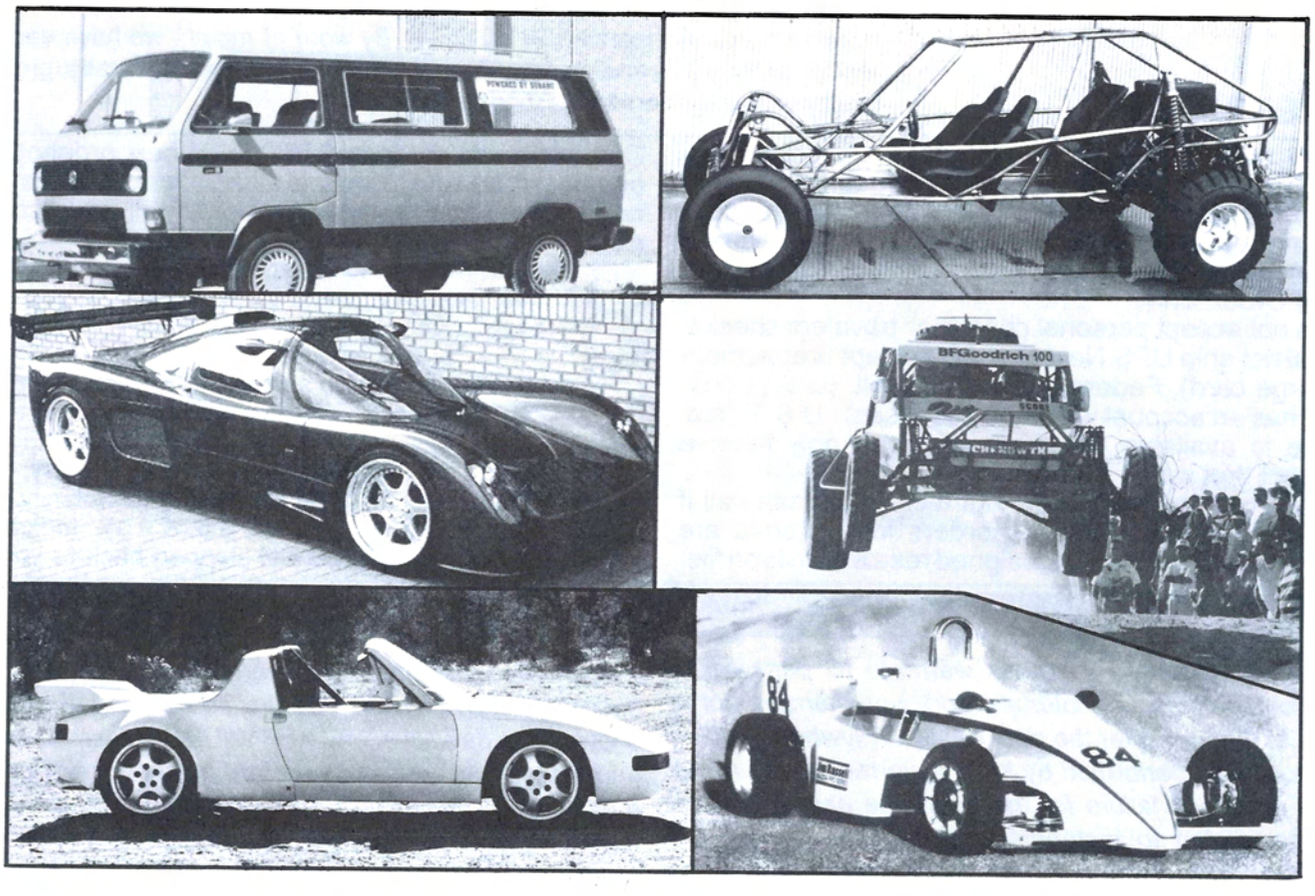

Engine Adapters for Transaxles

and

High Performance Clutches for VW & Porsche

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visit our website
www.kennedyeng.com

Revision 18

KENNEDY ENGINEERED PRODUCTS

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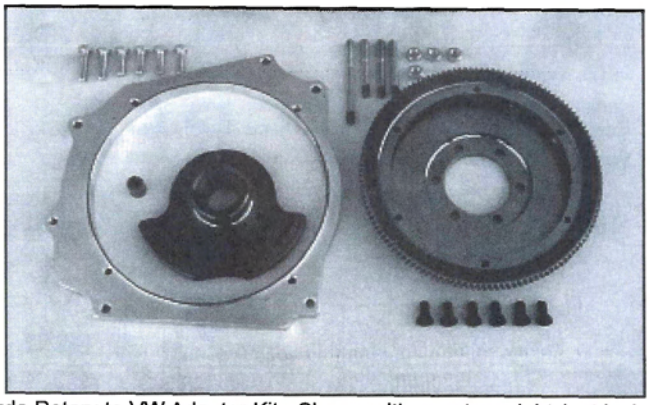


Mazda Rotary to VW Adapter Kit. Shown with counterweight (not included)

BRIEF HISTORY

Kennedy Engineered Products was founded in February 1968 when Hobert Kennedy left his job engineering hydraulic missile components and went full time at his hobby, designing custom sandbuggy parts, specifically engine adapters. Our specialty has become manufacturing engine adapters for transaxles and building high performance VW clutches. By word of mouth, we have earned a reputation for quality and integrity. Our eleven person team is committed to providing quality parts engineered for lasting performance.

ORDERING

Orders can be taken over the phone, FAX, e-mail or by mail. We ship by UPS. Prepayment by Cashier's Check or Money Order is preferred. We also accept Mastercard, Visa, or Discover (small extra charge added). COD orders are sent "Cashier's Check or Money Order" only.

We do not accept personal checks or travelers checks. We will not ship UPS Next Day Air (except prepayment or charge card), Federal Express or DHL (unless customer has an account with those services). U.S. Postal service is available for those who can only receive shipment that way.

Include your daytime phone number so we can call if questions should arise. All orders in California are considered taxable unless a signed resale card is on file.

Our minimum order is $15.00. When ordering an adapter kit, be sure to include all the information we may need. Reading this catalog carefully will save confusion. Some information may include:

- Year, make and size of engine
- Year and type of trans
- Type of vehicle you are building - street, kit car, etc,
- How you intend to mount the engine
- KEP engine reference number

Some engines are offset balanced from the factory. You will need to send the flywheel to us for matchbalancing on Buick V6 engines (196, 3.0, 3.3, 3.8, & 4.1). Indicate if you want your original flywheel shipped back to you.

WARRANTY

Kennedy Engineered Products warrants all parts to be free from defects in materials and workmanship for a period of 90 days after the date of sale. Flywheel welding and machining performed by KEP is warranted against all stress or fatigue failure for the life of the part. Flywheel damage related to fasteners is not included. Adapter plates and bellhousings manufactured by Kennedy Engineered Products are warranted from breakage for 5 years after the date of purchase. Kennedy Engineered Products will repair or replace, at their discretion, products which prove defective under normal use and service.

Exclusions: KEP's warranty does not apply to product that has been altered, improperly installed, maintained, repaired, or damaged by accident, negligence or misuse. Note: All products returned for inspection or repair must be prepaid to and from KEP, along with instructions regarding work to be done. This warranty excludes all incidental or consequential damages including bodily injury. The obligation of Kennedy Engineered Products under this warranty shall be limited to the part or parts shown to be defective, and KEP will not be responsible for damage or loss caused by delays, failures or any consequential damage arising from any cause, or for labor, transportation, or any other charges incurred in the replacement or repair of said defective part or parts. This warranty to repair or replace is the only warranty expressed, implied or statutory on which the buyer purchases KEP's products. All of the damages and warranties, statutory or otherwise being expressly waived by the buyer.

While we do our best to offer accurate information and guidelines for a practical engine swap, Kennedy Engineered Products assumes no liability for the application or use of its products.

GENERAL INFORMATION

CHOOSING THE RIGHT ADAPTION

When considering an engine swap, you must first decide what it is you need. For instance, a Chevy V8 may have incredible power, but when you put it in the rear of a VW, the handling is dangerous, the gearing is too low, and your new $2000 supertrans will grenade if you drive it hard. It pays to explore your options. Some things to consider when planning an engine swap are:

Your Resources	**Type of Vehicle**	**Smoothness of Engine**	**Radiator Location**
Your Aptitude	**Type of Driving**	**Strength of Transaxle**	**Clutch Needed**
Your Budget	**Mileage Desired**	**Weight of Engine**	**Starter Required**
Power Desired	**Engine Mounting**	**Height & Length of Engine**	**Smog Laws**

Read this catalog carefully for warnings and guidelines for the combination you are considering. Engine characteristics, weights and lengths for some motors are in our Engine Option List (pages 8 to 10). Height can be a problem, but a remote air filter helps. A few height dimensions are mentioned in the VW Bus section (page 6).
Working out the details of throttle linkage, radiator, cooling lines, heater, exhaust, and wiring can make the difference between a reliable, comfortable car, and a daily headache. Our instructions will help with guidelines for locating and plumbing your radiator system. Common sense, patience, and good advice are important tools to finish the job right.

WHAT WE PROVIDE

Our engine adaper kits are designed to adapt the bare engine to the bare transaxle only. Other sections of this catalog describe what parts are included. While we try to give helpful information, we do not provide complete installation instructions.

We specialize in heavy duty clutches for VW and Porsche to handle the extra torque of larger engines. Our clutches have become widely used in many forms of racing. We also stock a variety of heavy duty starters for VW and Porsche. When buying one of our adapter kits be sure to get the appropriate Kennedy clutch and starter for the job. They are the best available for the road or for the track!

COMPLETING THE SWAP

Finishing the job right is most important. When starting your conversion you should consider what modifications to the vehicle may be necessary. When using a much heavier, more powerful engine, attention should be given to the brakes and suspension. Taller gear ratios may also be desired, for big engines like the Chevy 4.3. Upgrades are available for the old rear engine VW and Porsche vehicles.

Working out the details of throttle linkage, radiator, cooling lines, heater, exhaust, and wiring can make the difference between a reliable, comfortable car and a daily headache. Our instructions will help with guidelines for radiator and gear ratios. Common sense, patience, and good advice are your best tools to finish the job right.

SMOG REGULATIONS & COMPUTERS

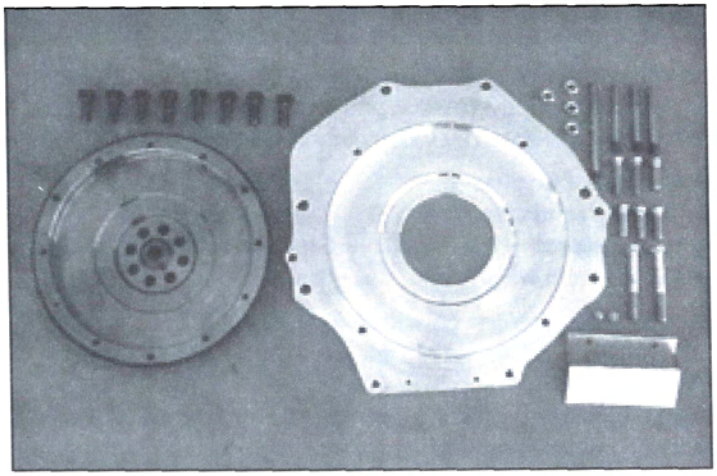
If you are required to meet smog reduction rules, then the extreme California laws can serve as a basis for engine choice. We must pass a visual inspection and tail pipe test based upon the year of the vehicle. The replacement engine must be the same year or newer than the vehicle. Installing a newer engine can cause problems depending upon which referee your test station sends you to. Some expect the engine to have all its smog controls, charcoal canister, exhaust manifold, catalytic converter, fuel pump, all the PCV tubing and computer. We have found the next higher authority, the Bureau of Automotive Repair (BAR) to be counterproductive. They are dedicated to the letter of the law, not the intent of the law. The highest authority, the Air Resources Board (ARB or CARB) have no concern unless you are setting up production of a specific product. Such as our Subaru Vanagon adaption, which has ARB approval.

If a '76 and newer chassis is used, the engine must be of the same year or newer, and must pass the smog tests.

A few of our customers have utilized their new engine's computer and original wiring harness. That is the only way to get the performance and gas mileage of the newer automobiles. Several companies sell wiring harness' at $850+ for computerized kit cars. Full schematics are shown in factory manuals which are available in Detroit for about $50 or at many local libraries.

There are no smog control requirements for newly constructed kit cars if they use a '73 or older engine and a frame or floorpan of older vintage than the engine. Lobbyists for some kit cars had the California law revised in 2000 so there are no controls on new kit cars if they use a new frame and a '73 or older engine. Logic does not apply in politics.

VOLKSWAGEN



228mm (9") Acura to VW adapter kit.

ADAPTER KITS

Most Kennedy Engineered Products adapter kits include either an aircraft aluminum plate or cast adapter engineered to accurately bolt the engine to the VW transaxle and specially contoured for strength and good appearance.

Standard KEP adapter kits also include a 200mm Volkswagen flywheel modified and balanced as required to properly match to the engine. They weigh about 17lbs and are available with a 6 volt (109 tooth) or 12 volt (130 tooth) ring gear. Flywheel lightening is available through KEP. A 6 volt transaxle must be cut out if it is to clear the $^1/_8$" larger '67 and later 12 volt gear. Our standard 200mm adapter kits fit manual shift transaxles for all model VW's with horizontally opposed engines. Kits are also available for the fully automatic VW transaxle but must be made to order.

KEP 9" (228mm) adapter kits feature 30% more clutch surface area and includes a completely new flywheel. KEP 9" kits are designed to fit the '76 and newer VW Bus and Vanagon bellhousings (except diesel). They also fit Mendeola, Fortin, Albin, and Hewland DG transaxles and are an option to the 200mm kits. These kits are popular for customers who wish to use their stock 228mm clutch or have applications with extra abuse or weight such as off-road race cars or campers that tow heavy loads.

Also included in our basic adapter kit is all the necessary hardware to bolt the kit in place. Fasteners for the flywheel, adapter and bellhousing, as well as a special pilot bearing and required dustshields are in the kit unless stock parts apply. The instructions with the kit give directions for bolting up the engine, suggested tips for installation, a radiator information page, and a gear ratio chart. Refer to our Engine Option List (pages 8 to10) to find what engine adapters are available.

To complete the adaption be sure to order the right Kennedy clutch kit and starter for your application. Look for the recommendations mentioned for your kit in this catalog.

INSTALLATION

MOUNTING THE ENGINE

Type 1 and swingaxle, Type 2 & 3 vehicles can use the existing VW mounts under the transaxle, provided they are genuine German mounts. We have encountered trouble with Brazilian mounts. An insulated strap over the front of the trans may be helpful for larger engines (such as the Buick V6) when driven hard, however, they transmit more noise through the car. Extra mounts supporting the engine are not usually necessary and are often difficult to fabricate. Solid mounts are not recommended for any street application. Stock rubber mounts under the bellhousing of bugs and early bus interfere with some engine adapters. We can make clearance cuts at an extra charge on the following kits:

# 1000	# 2650	# 4950	# 6500
# 1250	# 2670	# 5100	# 8300
# 1500	# 2900	# 5470	# 8500
# 1700	# 2950	# 6300	#8600
# 1750	# 3800	# 6350	
# 1760	# 4100	# 6470	

IRS Type 2, Vanagon, and IRS Type 3 vehicles require modifying or fabricating the crossmember to support the engine in the rear. The stock rubber engine mounts for the new engine can be used as long as the crossmember you make bolts solid to the frame. On Type 3 and '68–'71 Type 2 you may instead use the VW rubber mounts and bolt the crossmember solid to the engine. The top center hanger can be eliminated for Type 3 applications.

COOLING THE ENGINE

The best location for a radiator is in the front in order to get ram air pressure to move the air. On all Bugs, Ghias, and Type 3 cars the radiator will fit in the spare tire well. For stock appearance, a scoop under the bumper will force air through an opening made in the front apron, or the beetle wings could be louvered. The air must be allowed to exit into the wheel wells, out the bottom, or out of openings at the back of the hood. An electric fan or small water spray can provide cooling at idle, if necessary.

Baja Bugs with small engines and buses can be cooled by a rear radiator, provided an engine driven fan is used to draw the air in the rear and exit out the bottom. This fan must be a rigid positive drive type as used before 1973, and not the flex, fluid coupling or clutch type fan. Electric fans are usually not adequate.

For most front radiator applications steel tubing (preferably rectangular) is bolted under the floor to carry the coolant. A radiator instruction page is included with most kits.

EXHAUST

Usually the stock exhaust manifold for the replacement engine is used along with a few inches of its header pipe. An elbow and a small turbo muffler is welded on, then a bracket to the engine block is added to support it. If two mufflers are used on a V6 etc., then add a crossover upstream of the muffler to make it quieter. Glass packs will not last when used this close to the engine.

TRANSAXLE

ROTATION – All the engines in our catalog rotate the same direction as Volkswagen except Corvair and most four cylinder Honda. Those two exceptions should be limited to light duty, low mileage vehicles.

TRANSAXLE STRENGTH – The VW transaxle has proved itself reliable using engines as large as a Buick V6 on the street because the VW transaxle is overdesigned. When running an engine the size of a Buick V6, it must not be mistreated by jump starts, snap shifting, or hard down shifting, and 4th gear must be welded. Full throttle may be used in any gear except reverse which is sometimes forced out of adjustment by excessive torque. The IRS VW Bus transaxle is stronger than the Type 1 & 3, however it is geared for lower speed. The '76 and newer bus trans is strongest. More information comes with kit.

GEARING – Existing gearing is usually acceptable with most engines up to 3 Liter. For 2.5 Liter engines and larger, taller ratios may be preferred for compatibility, mileage, and more strength. Mazda rotary engines are low on torque and rev high, therefore prefer short gearing. A gear ratio chart is provided with our VW kits to help select the proper combination for your needs. Stronger racing gear sets are available but may have a short lifespan. They are annealed slightly so they are not as brittle for racing.

BEEFING THE TRANSAXLE – The parts necessary to beef a VW transaxle depend upon the job it is intended for. V6 or small V8 powered street vehicles usually require no more than welding 4th gear. Off-road vehicles require a 4 spider differential, adding two more spider gears. A Corvair or Honda powered car needs a side plate and a berrylium–copper spring washer for 3rd gear, or a reverse camshaft. A dragster needs magnifluxed axles, heat treated gears, and a steel shift fork. The average sandbuggy needs two more spider gears and close ratio gears. Off–road race cars receive so much abuse that they often get everything listed plus a second side plate, Porsche 930 C.V. joints, magnifluxed heat treated gears, and either solid mounts or two straps around the trans.

BINDING IN FOURTH GEAR (welded gears) – When running a large engine such as the 231 CID V6, a common problem is the VW transaxle binding in fourth. Fourth gear is in fact slipping apart where it is pressed together. A welded gear cures this problem. It is a good idea to have third gear welded as well. Most performance transaxle rebuilders offer welded gears. Any compentent helio-arc welder can do the job. The '72 and newer Type 2 (Bus) fourth gear is already electron beam welded.

DIFFERENTIAL SPIDER GEARS – It is recommended to install a four spider gear differential for any Type 1 & 3 trans when using steering brakes. It is also needed in racing vehicles or large engined sandbuggies. IRS Bus differentials seldom fail and extra beefing is not usually necessary. On swingaxle transaxles we suggest adjusting the differential sidegears by installing different thickness thrust washers under the snap rings which hold them in place. Check adjustment with a .002 feeler gage between the side gear and the thrust washer.

SIDE PLATES – Stronger sideplates add rigidity to keep the ring and pinion gears meshing properly. They are required when extreme backward forces are put through the transaxle. This occurs when you (1) downshift, (2) use a Corvair with its normal counterclockwise rotation, or (3) when the driver of a racing sandbuggy lets up on the throttle while airborne, then lands!

MID-ENGINE – When running mid-engine with a normal rotation engine the ring gear and differential must be flipped to the other side of the pinion in order to drive the tires the right direction and still keep the transaxle right side up. This is possible on all Type 1, early Type 2 and Type 3 manual shift transaxles with two sideplates. Vanagon and Type 2 '68 or newer transaxles cannot be changed over and must be run upside down for mid- engine applications. Inverting lowers the engine 5 inches.

TRANSAXLE	Rate 1=weak 10=strong	PRICE Rebuild/New	COMMENTS	TYPE	TALLEST Ratio	WEIGHT LBS
Stock VW Bug	1	$ 495	OK for Mazda or 2.8 V6. 4th gear binds under high torque	4SP	3.45	71
Corvair	2	500	Weak diff & input shaft. Heavy. Rotates backward	4SP	3.27	149
Beefed VW IRS	3	1000	Better handling on the street than swingaxle	4SP	3.41	75
VW Bus '68-'75	3	650	Not for midengine. Too low geared for big engine kit car	4SP	4.27	85
Beefed VW '65-'68	4	1200	Good for 3.8 V6 on street	4SP	3.41	75
Late VW Bus '76+	4	750	Stronger then earlier bus. Low speed gearing	4SP	4.02	85
VW bus Auto '68+	4	1100	Low speed gearing	Auto	4.09	130
901 Porsche (914)	5	2500 - 7500	914 is midengine-OK for 350 V8. Rated w/o low gear.	5SP	3.36	89
Mendeola MD4E	5	5400	Mid or rear or mid-engine sandrail."Rated 350 horse"	4SP	2.58	125
ZF Pantera, RBT	6	13000	Mid-engine transaxle. Good for street 350 V8 - Rare	5SP	2.79	135
915 Porsche	6	4250 - 10000	Good for V8 . Requires machining for mid engine.	5SP	2.81	109
Mendeola MD 4S-2D	6	7000	For large rear or mid engine sandrails.	4SP/5SP	2.64	123
996 Porsche-BoxS	7	6000 - 10000	Rear engine and mid-engine trans. Cable shift	6SP		
G-50 Porsche	7	6000 - 10000	Rear engine only. Geared tall for highway.	5SP		
930 Porsche	8	6000 - 10000	Only 4 speeds.	4SP		115
G-50 Porsche T	8	6000 - 10000	Rear engine only. Geared tall for highway. 5 or 6 speed.	5SP		133
GM TH425	9	1800	Heavy. Engine above differential. TH325 lighter- weaker	Auto	2.19	400+
Mendeola S4-5	9	12400	Sequential box for big V-8's	4-5SP		185
Fortin	10	15000 -26000	Designed for offroad racing. Rear or mid-engine	4-5-6SP	N/A	140
Transaxle Engineer	10	15000	Automatic. Takes the most abuse from offroad racing	Auto	2.50	190
Albins	10	23000	For big engine sand rails	5-6SP		
Mendeola HD4	10	23500	Made to use KFP Triple Disc Only	4SP		300

TYPE 1

If the hood and apron are left off anything, even a Chev V8, will fit without looking ridiculous but it is way too heavy. Customers running 2.8 Chev V6 and similar sized engines are happy with their swap. The rear apron can be bolted back in behind these V6 engines. If you wish to close the hood so it looks stock you are limited to a 1.8 OHV Subaru or remount the alternator and carburetor on a 12 A Mazda.

TYPE 3

Many practical engine swaps can be performed on the Type 3 (Squareback and Fastback), provided a box is built on top of the engine compartment to raise the area hiding the new powerplant. The Subaru and possibly the Mazda Rotary can be modified to fit below the stock cover. With a box installed, even the Buick V6 will fit easily with a minimal amount of clearancing. Radiator mounting and air flow work out clean and simple with the Type 3 .

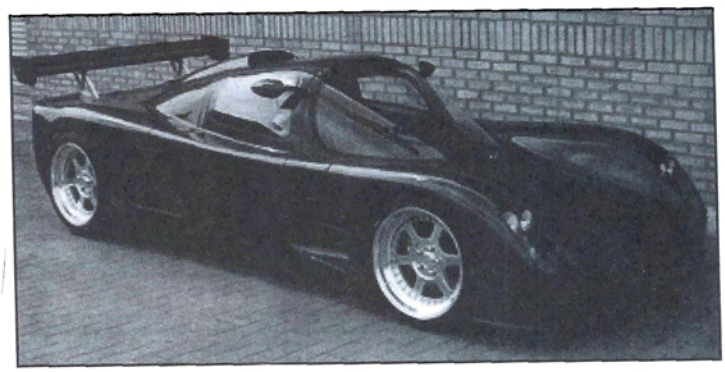
The neatest radiator opening I have seen in a bug is this Ford Courier grill.

KIT CARS

Whether building a low priced VW based Kit Car or an exotic high performance sports car, your choice of engine and transaxle determines the outcome. Kennedy Engineered Products gives you a choice of many combinations to suit your needs. Our reputation of quality is longstanding with the industry leaders – just ask around.

When choosing an engine for your Kit Car follow the helpful recommendations in this catalog. Because of its size, power and weight the Mazda rotary has been popular for VW based cars, but many other engines have been used successfully. For most rear engine applications on the VW transaxle the engine can hang without additional support. Mid-engine mounting is recommended for larger engines. Be sure to measure the engine to determine if you have enough space.

If building a more exotic high performance Kit Car with a V8 or V6 engine you must not only consider what engine to use, but the best transaxle to turn this power into motion. The chart on page 5 is meant as a guide for selecting a transaxle.



Ultima Kit Car in UK, Australia and America

Specific information may be found in other sections of the catalog or from a competent transaxle builder. We do not sell transaxles. When considering a transaxle remember to research axleshafts, suspension, and brake components as well.

OFF-ROAD VEHICLES

KEP adapter kits and clutches are widely used in off-road vehicles of many types. Both professional racers and weekend enthusiasts rely on Kennedy for winning results.

The three most popular transaxles are VW swingaxle, the VW Bus IRS, and Mendeola. All the engines from our Engine Option List can be used. Adapter kits for the VW swingaxle are limited to the 200mm single or double disc KEP flywheel and clutch. Kits for the '76+ IRS Bus and aftermarket transaxles are available using either the 200mm or KEP 9" flywheel and clutch. Find more information in the transaxle sections of this catalog.

There are constant changes in the offroad scene, for manual transaxles and automatics but be assured that we at Kennedy will attempt to keep up with the demands for more horsepower and the need for speed!

VOLKSWAGEN TYPE 2 & VANAGON

Your choice of engine for a VW Bus should depend upon what you desire in performance, durability, expense and ease of assembly. Some adaptions have difficult areas, so study the chart below carefully. It gives our estimate for characteristics of some engines when adapted to the VW Bus.

When adapting to the VW Bus (Type 2) a major concern is vibration. In the "big tin box" a rough engine will produce an incredible amount of noise. Avoid long stroke four cylinder engines like the Pinto 2000, Chrysler 2.2, and Saturn. Quad four is overbore but bad. Rabbit is overstroke but usable.

Gearing is very low on VW Buses, so a smooth high RPM engine is recommended. Only small changes in gearing can be made on bus transaxles. A VW gear ratio chart is included in all our VW kits.

Many engines from transverse installations have parts of the engine that interfere with the gas tank of a VW bus. The VW Rabbit has a heater outlet and temperature gauge that must be blocked or rerouted. The Citation V6 has a large distributor so use an S-10 with its smaller distributor and different intake manifold. The fuel injection air flow meter or distributor on many engines would require relocating the gas tank. Examples of these are the Passat V6, Escort, Acura V6, Contour, Chrysler 2.2, SHO, Subaru 1.8 OHC, Subaru 2.2.

Another limiting factor in the Bus is the deck height. '68 -'79 Buses have 19" of space from the transaxle center to the deck area. Buses up to '67 have 17" and the Vanagon has only $12^1/_2$".

There are two practical places where a radiator can be mounted on a VW Bus: in front or in back. Other places have been tried with very limited success. Mounting the radiator in front of the VW Bus works fine for most normal driving and is good for high speed desert travel with large engines. Be sure to follow the KEP instructions on front mounted radiators in order to control air and steam pockets. Customers with roof mounted radiators are happy, but you must carry a ladder to add water.

Locating the radiator on the back is often preferred because it eliminates any water flow problems. A direct drive, engine driven fan (non flex, no clutch or fluid drive), pulls air in the back, through the radiator, and expels it out the bottom. This corresponds to the normal flow of air as it would be without a fan. A reverse pitch fan will not work well. Factory and aftermarket side scoops are too restrictive to be of any value to a radiator system. Rear radiators have three disadvantages: fan noise, limited engine access and dirt blown over the engine off road.

Be sure when ordering an adapter kit to inform us of the year of your bellhousing. Kits for '76 and newer Vans get longer studs, have the option of using a 228mm flywheel and require a more expensive starter. Vanagon diesel bellhousings must be replaced with non-diesel unless a Rabbit engine is installed.

VANAGON CAMPER

Any engine installed in '80-91 camper will require modifications to keep it from interfering with the bed. This even applies to the Mazda, Porsche 911, Corvair and Subaru. A custom air duct available from KEP will allow the Subaru 2.2 engine to be lifted up to the original position without touching the stock engine cover. This is part of a complete kit which is smog legal in California. This 130 horsepower engine is compatible with the stock gearing and stock clutch in the Vanagon yet weighs only 50 pounds more. It fits the compartment like it belongs there except it cuts ground clearance several inches. The new KEP exhaust pipes flow better than stock and do not cut ground clearance. They will bolt to the original Waterboxer catalytic converter and muffler or to our new approved cat and muffler. If you buy a 2.2 Subaru engine be certain to get all the computer wiring, relays, air filter, and motor mounts. Write for more information or send $20 for wiring instructions and details.

There seems to be almost as many usable Vanagons in wrecking yards as on the street. If you are considering repowering an older van, I would like to suggest you phone your local wrecking yards. You may be able to update to a much better designed vehicle for very little expense.

10 = Excellent
8 = Good
6 = Average
3 = Poor
1 = Not Acceptable
— = Not Necessary

	Performance	Smoothness	Engine Durability	Engine price in $100's	Engine availability	Size, fit in length '67 & older	Size, fit in length '68 & ewer	Size, fit in height '67 & older	Size, fit in height '68-'79	Size, fit in height Vanagon	Ease to fabricate crossmember in '68+Bus	Expected gas mileage	Mileage with gearing or Minor engine changes	Radiator size, minimum Sq. inch for rear mount	
Chevrolet 60° V6	8	8	7	6	8	8	10	8	8	5	5	18		350	Copy of Ford V6 but computerized after '80
Nissan V6, P.U. & 300ZX	9	9	9	6	7			8	10	5		18		350	Smooth, computer controlled, other Nissan V6 interfere with the gas tank.
Ford 60° V6 '74–'79	7	7	9	5	6	6	10	6	8	3	7	18	19	350	#1 compromise, power, smooth & simple
Buick '61 215 CID V8	10	10	10	6	3	5	5	6	8	3	8	18	20	450	#1 power. Eng. & parts rare. Beef trans
Buick '82 + 3.0L, V6	8	9	9	5	3	8	10	5	8	3	5	18		400	#1 V6 in theory but computer carb & dist.
Buick V6 '64 on	9	5	9	4	7	6	10	5	8	3	8	14	20	450	Good Power. Beef trans and change gearing
Toyota 2TC	5	7	10	2	7	8	10	8	10	5	7	23	24	300	#1 mileage. Smoothest 4 inline engine.
Rabbit '76 and newer	5	7	9	3	10	8	10	8	10	5	3	23		300	OK but difficult mounts. Fits diesel van
Porsche 911	9	10	8	40	5	10	10	10	10	6	7	18		—	Great if you can afford cost & maintenance
Mazda RX–7	8	9	9	5	4	10	10	10	10	5	8	14	16	450	Trade mileage & sound for good looks
Corvair (reversed)	6	8	7	8	4	8	10	10	10	6	5	20		—	'68+ Bus needs reverse cam or Corvair trans
Subaru 2.2 OHC	8	10	10	11	5	10	10	10	10	10	7	20		250	Ideal only for Vanagon, computerized
Subaru 1800 pushrod	5	8	10	3	6	10	10	10	10	9	8	23		250	Good choice for stock performance
Toyota 18R to 22R	7	4	10	4	9	6	8	7	9	4	7	20		300	Rough, heavy but usable for sandrail
Pinto 2300 '74+	6	3	10	4	9	6	8	7	9	4	6	20		325	Somewhat heavy, bad vibration
Pinto 2000cc	6	1	9	3	5	7	9	7	9	4	6				Not usable in a Bus due to vibration
Well hopped up VW	7	8	3	20	7	10	10	10	10	10	10	15	18	--	Expensive firecracker with short fuse
Chevrolet V8	10	10	10	7	9	5	5	5	8	3	8	14	20		Excessive weight and torque destroys trans

For street use keep the smoothness rating at or above 7.

Height interference requires a box over the engine which interferes with the bed in most campers.

KENNEDY ENGINEERED PRODUCTS ENGINE OPTION LIST

Engine weights are those taken at KEP, less flywheel, clutch and options. Lengths are measured from adapter face to front pulley. Information is taken from available engines only, and will vary. For comparison, a 1600 VW weighs 215 lbs with heater boxes; 180 lbs if stripped for a sandrail, and is 14 1/2" long.

MAZDA ROTARY

REF.#

2640 **Mazda** 13B twin turbo & 3 rotor 20B

2670 **Mazda '74 and newer 12A & 13B & RX8.** Popular because of its small size, power and smoothness, but is short on bottom end torque. Inefficient design requires more fuel, a larger radiator, and an oil cooler. The exhaust is hotter and louder than piston engines. 13B RX-7 engines are computer controlled. If your engine came from a manual shift, you will need the proper automatic counterweight from your Mazda dealer or from KEP. A 6 volt starter run on 12 volts is recommended for efficient starting so specify 6 or 12 volt flywheel in kit. 90 to 160 HP or 255 HP turbo. WEIGHT: 260 lbs.; DISPLACEMENT: 3438, 3942cc; LENGTH: 12A - 19", 13B-20".

FOUR CYLINDER ENGINES

7800 **Acura Integra to '89** Rotates backwards. Popular for off road. Lots of hop up potential. DISPLACEMENT: 1599cc. 118 HP

7850 **Acura Integra '90+ & Honda Del Sol** (1.6 DOHC VTec). Rotates backwards. Popular for off road. Lots of hop up potential. DISPLACEMENT: 1834cc; 140 - 170 (VTec) HP

7460 **Acura RSX** 2.0 liter, Rotates correct direction.

3500 **BMW** 1600, 2002 (and 3.0 Liter) Specify 6 or 8 bolt flywheel.

1700 **Chevy II, Nova 4cyl**, '62–'70. This overbored engine is smooth enough for a bus though light for its displacement. A good choice for VW Bus. WEIGHT: 283lb; DISPLACEMENT: 2510cc; LENGTH: 24 1/4"; 95 HP

4060 **Chevy Cobalt 2.0, 2.2, 2.4 Ecotech**

4055 **Chevy Cavalier 2.2**

4050 **Chevy Citation** and others, '79 to present. Same as Iron Duke except different bolt pattern on the engine block. WEIGHT: no info; DISPLACEMENT: 2474cc; LENGTH: 22 1/2"; 115 HP

4200 **Chrysler 2.2 & 2.5 Liter**. A performance engine, light for it size but too rough for street. Specify 6 or 8 bolt flywheel. WEIGHT: 267lb; LENGTH: 21"; 100 HP or 145 HP Turbo.

4280 **Datsun A Series**, B210, only 1400cc. 65 HP.

4300 **Dodge SR+4,** 2.4 (Neon)

3900 **Fiesta** '77-'80 (#2580 **Escort** '81-84).

3700 **Ford 1600 Pinto.** Specify SAE or metric threads. Excessive vibration for street use.

2500 **Ford 2000cc Pinto**, '72–'73 Popular for sandbuggies. Excessive vibration for street. WEIGHT: 286lb; LENGTH: 22½" 73-90 HP

2550 **Ford 2300cc, Pinto**, Mustang, Bronco, and others . 96 HP or 120 to 200 HP turbo. WEIGHT: 328lb; LENGTH: 24 1/2"

2570 **Ford Z-Tec+,** 2.0 Focus, Escort

8550 **Ford Duratech,** 2.3 DOHC. Ranger, Focus, Fusion.

5000 **GM Quad 4**, '88+. High output 2.3 Liter DOHC 16 valve computer controlled. Vibrates at high RPM, not recommended for street use. WEIGHT: 320lb; LENGTH: 21"; 160-180 HP.

3400 **Honda** '73-'83 and others. Most 4 cylinder Hondas rotates backward. Many variations. Send a rubbing so we can identify

7400 **Honda Prelude '93+**. 2.2-2.3 VTec, rotates backward.

7450 **Honda S2000**, 2001+, 2.0 liter, 240 HP- rotates the correct direction.

7460 **Honda Accord 2.4** (K Series). Rotates correct direction.

7950 **Mazda Miata**, 1.8 DOHC (1.6), 160 HP. WEIGHT: 257 lbs.

5900 **Mitsubishi** 2.0 Liter Galant & Eclipse. 6 or 7 bolt crank versions

5950 **Mitsubishi** Evo 8, 2.0 Turbo

2400 **Nissan L Series and NAPS–Z** also Frontier (1600–2400cc). Specify which vehicle the engine came from: 1600cc had 5 bolt flywheel, L series slant left, pickups are vertical, NAPS-Z slant right. WEIGHT: 265lb; 69-140 HP.

4800 **Nissan SR 20**, '91-94 , Gytr, Sentra SE-R. 2 liter 16 valve, 130-300HP.

4100 **Pontiac Iron Duke,** '77 and '78. Similar to Nova 4cyl. except different flywheel bolt pattern. Same smooth characteristics. WEIGHT: no info; DISPLACEMENT: 2474cc; 85 HP

1300 **Porsche 914, VW type 4 engine** (411 and '72 + Type 2 opposed). Our special flywheel makes the adaption a simple bolt up, with proper ring gear location and release bearing compatibility. Fits the 200mm VW clutch. WEIGHT: 265, 311 lbs.

1380 **Porsche 912, 356**. KEP 200mm flywheel accepts the VW clutch. Available with 6 or 12 volt ring gear. WEIGHT: 210lb

4600 **Saturn 1.9, aluminum SOHC & DOHC**. Too rough for a bus. Light. Great for sandrail but computerized. 85 to 124 HP. WEIGHT: 240 lbs.; LENGTH: 19½"; HEIGHT: 17½"

4500 **Subaru 1800cc**. '81-'86 OHV (pushrod). A light economical opposed engine. Good feedback from bus owners. 72 HP or 110 HP Turbo. WEIGHT: 188 lbs.; LENGTH: 14"; HEIGHT: 15"

5500 **Subaru 1800 OHC**, Loyale, opposed, computer controlled engine. 85-97 HP or 115 turbo. LENGTH: 16"; HEIGHT: 12"

6500 **Subaru 2.0, 2.2, 2.5** '90-'04 Legacy, WRX & others. 16 valve, opposed. Excellent for Vanagon but not the earlier bus. Computer controlled. WEIGHT: 260lb.; LENGTH: 16 1/2"; HEIGHT: 14"; 130 HP or 165 HP, 230 HP turbo

7350 **Toyota 1ZZ**, 1.8 DOHC used in offroad

7300 **Toyota A Series**, 1A, 3A, 4A (Tercel, MR2 to '89, '84+Corolla, '85+ Chevy Nova). The small light weight 16 valve MR2 engines are being used by offroad racers for the 1600cc class. No information on street applications. Specify 6 or 8 bolt flywheel and stock 5° slant or vertical. WEIGHT: 225lb; DISPLACEMENT: 1452, 1587cc; LENGTH: 20"

6300 **Toyota R Series,** 20-22R Pre '86 Celica, Corona and Pickup. A durable engine. Too rough for some uses.

6350 18R kit also fits 18 RG DOHC. WEIGHT: 318lb; LENGTH: 24½"

5300 **Toyota S Series**, 3SG Celica DOHC. 16 valve. Used by off-road racers. Specify 6 or 8 bolt flywheel. WEIGHT: 293lb; DISPLACEMENT: 1998cc; 135-190 HP

5350 **Toyota Tacoma** 2.4 & 2.7, '96+

5370 **Toyota MR2** 2.0 DOHC

3300 **Toyota Corolla 2TC, 2TG (DOHC) '71-'79, 3TC '80-'81.**, Short stroke on 2TC makes it smooth enough that we recommend it for a bus. It has excellent durability and reliability. Specify stock 5° slant or vertical engine. WEIGHT: 262lb; DISPLACEMENT: 1588, 1800cc; LENGTH: 23 1/2". 75HP

3600 **Volkswagen 75+ Rabbit**,(including diesel) Dasher, Scirocco, Jetta, Golf, Fox, '78-'84 Omni and Horizon. Specify stock 15° slant, vertical or 50° Vanagon engine position. Specify if for Omni and Horizon. 62 to 134 HP or 158 HP supercharged. '76 and newer are smooth enoughfor bus or kit car. WEIGHT: 231lb; LENGTH: 19"

3650 **Volkswagen 99+Jetta, Bug 2.0 etc.** Alum oil pan.

2800 **Volvo** '64–'75 B–18, B–20 (6 bolt), '76+ B–21, B21F (8 bolt flywheel). B-23.

SIX CYLINDER ENGINES

6400 **Acura V6**, 2.5, 2.7 Liter, '86-'90 & Sterling. Unlike 4 cylinder Hondas, this one rotates the correct direction.
WEIGHT: 350lb; LENGTH: 20 1/2" Also fits NSX which weighs only 275 lbs. and makes 270 HP.

6450 **Acura V6, 90°** 3.2 & 3.5 Liter. '92+ Legend.

6470 **Acura V6, 60°** 3.0-3.5 Liter, '98+

6480 **Acura V6, MDX** , Saturn, Ridgeline 3.5 2001+

1500 **Buick & Olds 196, 225, 231 & 252. Buick & Olds '64-67 (225) and '75+ (231) and '80+ (252) and Jeep '65-70.**
Rear wheel drive . Matches torque capacity of beefed VW trans so drive with respect. Due to variations in factory balance you must send the original Buick flywheel or flexplate to us to match balance, or send the crank, pistons, etc. to a balance shop.
WEIGHT: 367 to 410 lbs; 110 HP, 170 to 200 HP turbo.

4400 **Buick 3.0 '82+, 3.3 '89+ Century.** Specify engine year.
125 & 160 HP. WEIGHT: 377lb; DISPLACEMENT: 2866cc; LENGTH: 23"

4450 **GM 3.8 Liter V6,** FWD & '96+ RWD Camero & Firebird. Specify 6 or 8 bolt crank. Fully computerized with no distributor.
Send original flywheel for match balance. WEIGHT: no info; 142 to 170 HP; LENGTH: 22 1/2"

1000 **Buick 198 CID** V6, '62–'63. Early version of the V6. WEIGHT: 354lb

8400 **Cadillac 3.5** Shortstar V6

8450 **Cadillac 3.6** Newstar V6 - Cts, Camero

4000 **Chevrolet 60° V6 2800cc** Citation, S–10, Jeep '79-'89 and 3100cc 89+ Chev & 3.4. The S–10 is preferred for the VW bus because of smaller distributor, better motor mount locations on block, and not computerized for '81-'83. WEIGHT: 350lb; LENGTH: 24"

1700 **Chevrolet 90° V6**, 3.8 & 4.3 Liter. Shortened small block V8. Some Chev's use Buick engines so verify rear distributor (over flywheel).
1720 **Chevrolet 4.2L**, straight six Vortec. Weight 408 lbs.

1750 **Chevrolet 90° V6,** 4.3 **86+** engines have a smaller flywheel bolt pattern and require an out of balance flywheel. WEIGHT: no info

1755 **Chevrolet 4.3 V6, 96+** requires a different adapter because of aluminum oil pan and crank protrusion.

1600 **Corvair**. All Corvair engines rotate backward which puts extra stress through the trans or use reverse cam. WEIGHT: 300lb

1200 **Ford 60° V6**, 2.6, 2.8, 2.9 & 4.0 Capri, Mustang, Pinto, Bronco II, Explorer & Ranger. Smoother than Buick V6 & most 4 cyl.
WEIGHT: 365lb; LENGTH: 23"; 97 HP 4.0 - 145-210 HP
1250 **Ford V6 4.0 SOHC**, Explorer, 210 HP

2950 **Ford 90° V6**, 231 CID, Continental, Cougar, & T-Bird. Version of the 289 V8. WEIGHT: 402lb; 120 to 210 HP turbo; LENGTH: 21"

4900 **Ford 3.0 Liter V6.** Taurus, Aerostar, Ranger, Tempo, (Probe to '92) 135 to 140 HP.

4950 **Ford SHO 3.0 Lit.** Computer controlled, 24 valve, DOHC performance engine . Reliable. WEIGHT: 447lb.; LENGTH: 22".
4960 **Ford 3.8 Taurus FWD**

7900 **Ford Probe '93, & Mazda MX6,** 60° 2.5L DOHC. 164 HP.

8500 **Ford Contour, Taurus.** 2.5 DOHC V6, 3.0. Aluminum block and heads but not as light as Ford claims. 170 HP;
WEIGHT: 390 lbs.; LENGTH: 19"; HEIGHT: 21".

8700 **Izusu V6** 3.2 DOHC

5200 **Mitsubishi 3.0 V6.** 142 HP. 222 HP as a 24 valve engine.

5250 **Chrysler 3.5 V6** ,300M

5400 **Nissan V6**, 3 Liter, 300 ZX, Maxima, and early Pickup. All have computer ignition. Specify 6 or 8 bolt crank.
WEIGHT: 360lb; HEIGHT: 17½"

5450 **Nissan V6,** 96+ 3.0-3.5 aluminum block, computer controlled

1350 **Porsche 911** Available with either 6 bolt or 9 bolt (Ref# 1360) flywheel. KEP 9-915 flywheel rings are also available to use our KEP 9" clutch with the stock Porsche flat flywheel in the '76+ VW Bus & Vanagon, Hewland DG or Porsche 901 transaxle.
WEIGHT: 280lbs. (2.4L without heater boxes, etc.)

5500 **Subaru 2.7 OHC, '91 XT6,** 24 valve, opposed. 145 HP.

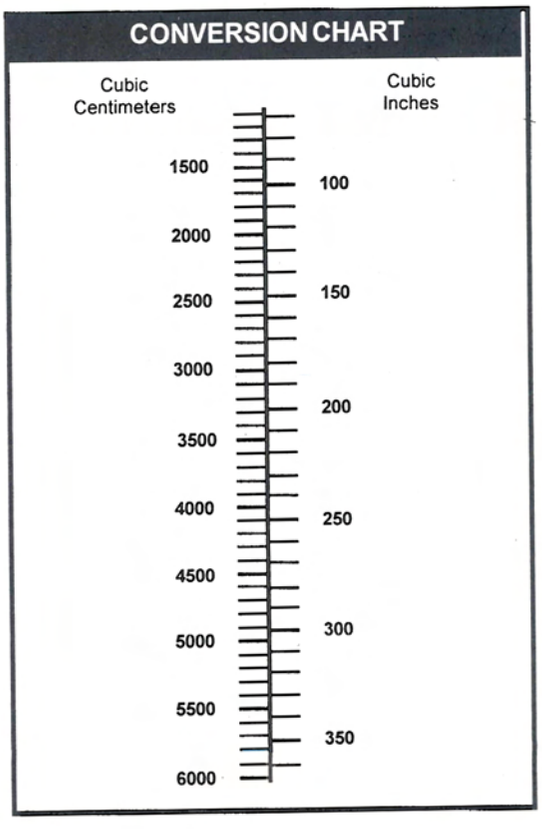
6500 **Subaru 3.3 SVX,** '92-96 24 valve, 3.0 opposed ; 230 HP; WEIGHT: 387 lbs.; LENGTH: 21"; HEIGHT: 15"

8300 **Toyota V6**, 3 Liter, 3.4 Tacoma truck, Lexus RX300. Used in unlimited off-road race cars. Specify if truck or Camery.
WEIGHT: no info; LENGTH: 21 1/2"

5600 **Volkswagen Jetta, Passat, Corrado.** '92-'98, 2900cc VR6. Computer controlled. Specify slant 7½° or vertical.
LENGTH: 19"; HEIGHT: 18 1/2" WEIGHT: 374lb; 172 HP.

3800 **Volvo V6**, Renault, Peugeot, DeLorean. All aluminum. 90°.
WEIGHT: 350lb; 135 HP.

CONVERSION CHART



V8 ENGINES

All these V8 engines, with the exception of the 3.5 liter Buick, are too powerful for any VW trans so must be limited to a 900 series Porsche, Toronado, Pantara, or Transaxle Engineering' automatic transaxle. Offroad racers have a choice of Toronado, 930 & G50 Porsche, Mendeola, Transaxle Engineering, or Fortin transaxles. These all require our adapter kits.

1000 **Buick Aluminum V8**, Olds, Pontiac ('61-'63) and Rover 3500, 215 CID. The first choice for smooth performance in a VW. A light V8, but good engines are hard to find. Specify if Rover engine. WEIGHT: 320lb; LENGTH: 28 1/2
8400 **Cadillac Northstar & Aurora V8.** DOHC 4.0 & 4.6. Computer contolled. Easily damaged if overheated.
1700 **Chevrolet V8**, Small Block. Popular for 914 Porsche. Not recommended for VW transaxle. Due to weight, use only mid-engine. Specify if for '86+ (Ref# 1750) with smaller flywheel bolt pattern. WEIGHT: 500lb; LENGTH: 29"
1760 **Chevrolet Corvette LS1**- aluminum block. LS1-LS7. 5.7, 6.0, 427.
1765 **Chevrolet Corvette LS9** - ZR1 and LSA Cadillac Cts-V

5700 **Chrysler Hemi** - 5.7 - 6.1

2900 **Ford V8** '65+ 289, 302, 351 CID (except 351M). A little lighter than the Chevy. Extra charge for '81 and newer 302. WEIGHT: 450lb; LENGTH: 29 1/2"
5100 **Ford V8** OHC 4.6, '92+ T Bird, Mustang, Crown Vic. & Merc. clones. 240 HP or 300 HP DOHC in Lincoln Navigator, 500+ HP Shelbyl Fits 5.4 & V10
2920 **Ford 390**, 427 Big Block.
8600 **Lexus V8,** DOHC. 4.0 &Toyota 4.7 Large engine.
5460 **Nissan 5.6 V8** - Titan DOHC
6000 **Viper V10** - Heavy and long. Gen 1 and Gen 3.

OTHER ADAPTIONS

AUDI 5000 Transaxle

1785 '86+Chevy V8, 4.3 V6 (pre '96),
1780 Pre '86 Chevy V8, 3.8 RWD
1580 Buick V6 3.8 RWD
2980 Ford 289, 302, 351 (Cleveland or Windsor), 3.8 RWD V6
4480 GM FWD V6

These KEP adapters are designed to use the 240mm Turbo 5000 clutch parts (if manual shift).

Manual kit includes the adapter plate made of aluminum plate, a custom made steel flywheel, pilot bearing and all the necessary bolts to fit the engine to the transaxle. High performance clutches also available.

Automatic kit includes the same adapter plate, a custom made flexplate, and all the necessary bolts to fit the engine to the transaxle. We do not provide the torque converter bolts. Customer must specify 3 or 4 bolt pattern on the torque converter.

CHEVY LS1 thru 9 to PORSCHE 996-911 from '99-05 & Boxster S

This kit uses a gear reduction LS starter and uses the 996 clutch. We also have high performance clutches for this with wider contact surface than the stock clutch.

MAZDA ROTARY TO MUSTANG T-5 5 SPEED

KEP # 9900 Adapter kit fits most manual shift '74+ Mazda rotary bellhousings to the Borg-Warner T-5 transmission (from the Ford Mustang GT '85+) The Mazda flywheel, clutch, starter and throwout bearing are retained. A Ford disc must be used. The T-5 transmission that is normally slanted 18° must now be mounted vertical. Kit includes adapter plate, bolts, pilot bearing and instructions.

PANTERA & MONGUSTA ZF TRANSAXLE

We adapt Ford V8, Chevy V8, Northstar, and Buick V6 to this strong mid-engine transaxle. Gearing is now available from RBT for off-road use. Bellhousing can be made for inverted pattern. Includes bellhousing, bolts, pilot bearing and instructions.

TORONADO TH-425 TRANSAXLE (ALSO FITS TH325 AND TURBO 350/400 TRANS)

The Toronado transaxle is very strong, very heavy and the only readily available automatic transaxle meant to handle the torque of a performance V8.

REF# 9300 Chevy V6 or V8 to Toronado or Turbo 350/400 and 700R4. Unlike our competitors, our properly designed kit uses a 7/16 " ground steel adapter plate and crankshaft extender to locate the torque converter. Bolts, converter spacers, and instructions are included. Oil pan must be modified for use on Toronado.

REF# 9100 Aluminum V8 to Toronado or Turbo 350/400 and 700R4 and Powerglide. The '61-'63 Buick-Olds 215 V8 did not come with a good transmission. Using our adapter, you can fit a reliable Turbo trans to the engine. It also fits Powerglide if you specify when ordering. If for a Turbo 400, the 350 converter must be used. Comes with a modified flexplate. A Buick flexplate core is required.

STARTERS AND FLYWHEELS

A regular 12 volt VW starter will crank most smaller engines and even some V6's provided the engine has not been freshly overhauled. A good, big battery and 6 volt (large) cables are used, and a large ground strap is run from the battery directly to the engine. Our starter tests (left column) will help you decide which one you will need to crank your engine. The list shows starter torque at the crankshaft using a fresh 12 volt battery. **If a stronger starter is needed on a Syncro 4WD Vanagon a 104 starter can be used but it is tight.

*starters available from KEP
Gear Reduction starters available in chrome also.

lb.ft.	DESCRIPTION OF STARTER	VW sedan 6 volt	VW sedan '67+, bus to '75	VW '76+ bus & Vanagon	VW Syncro Van	VW Automatic	Porsche 914, 911, 912	Porsche '87-89 G50, 930
70	**311 911 023D** Stock short 12v VW Lightweight, for engines under 2000cc. 10 lbs.		✓					
100	**091 911 023** Stock short 12v VWs, 10 lbs.			✓	✓			
110	**113 911 021** Standard 6v tested on 12 volts. Spins small engine faster. Use 12v solenoid. Good on Mazda adaption with 109 tooth 6 volt flywheel. SR11X	✓						
130	**311 911 023B** Stock long 12v VW. Can crank most smaller V6 engines unless high compression.		✓					
170	**003 911 023A** Longer Porsche 914 and VW automatic. (Stamped 0.8 PS) 12 lbs. SR17X		✓			✓	✓	✓
250	**KEP SR92.** Bosch Diesel Starter #0 001 314 012. End plate available from KEP for VW bug.		✓					
250	**PORSCHE 911** (P.N. 916 604 101 00) Enough torque for most V6 or V8 Porsche adaptions but not recommended due to weak design at front bushing inside starter. (1.5 PS) 15 lbs.		✓			✓	✓	✓
500	* **GEAR REDUCTION #101-** Not for Mazda adaptions due to slower cranking . 9 lbs.		✓			✓	✓	✓
500	* **GEAR REDUCTION #104** - As above except extended gear for '76+ Vans. 9 1/2 lbs.			✓	✓			
500	* **GEAR REDUCTION #105-** 6 volt gear. Not for Mazda adaptions due to slower cranking . 9 lbs.		✓			✓	✓	✓
630	* **GEAR REDUCTION # 101N** - More RPM and Torque for high compression engines.			✓				
630	* **GEAR REDUCTION # 104N** - More RPM and Torque for high compression engines.		✓			✓	✓	✓
630	* **GEAR REDUCTION # 101NMR** - Special for Mazda, more RPM. (or Use SR11X Above)	✓						

FLYWHEELS, MODIFICATIONS AND REPAIRS

Flywheel Lightening - We do not cut off material behind the clutch surface, only the outside (where it counts). Total weight will vary depending on kit or flywheel type. Prices include rebalancing. Some kit flywheels cannot be lightened due to offset balance (Buick V6, late Chevy V6, V8, Ford 3.8 V6, V8). Specify if you want 5 or 7 pounds taken off. Prices and weights apply to 200mm flywheels only. Others will vary.

Resurfacing - Clutch surfaces are precision ground to proper depth. Rebalancing performed when required.

Ring Gear Replacement - When the teeth get bad don't replace the flywheel, just replace the teeth. We will machine off your old gear and shrink a new gear in place. Balancing included.

Ring Gears - Specify 6 volt (109 teeth) or 12 volt (130 teeth). KEP-made Porsche 915, 930 & G50 ring gears are in stock.

VW Flywheels - KEP offers a selection of new, used or reconditioned 200mm VW flywheels, made to order.

Match Balancing - We can duplicate the balance of our flywheel to your engines original flywheel. This is needed primarily on Buick V6 and later Honda engines due to factory variations unless the engine parts are taken to a balance shop. Because of the variation in factory balance we recommend match balancing for any engine designed with an offset flywheel balance but this is also beneficial on many others for a smoother running combination.

Starter Bushing Tool - This special tool, designed by KEP, cuts the 12 volt VW starter bushing hole to fit the 6 volt VW bushing. Required when using a Corvair or 6 volt VW starter on a 12 volt transaxle. Can also be used with an adapter bushing to repair a damaged 12 volt bellhousing.

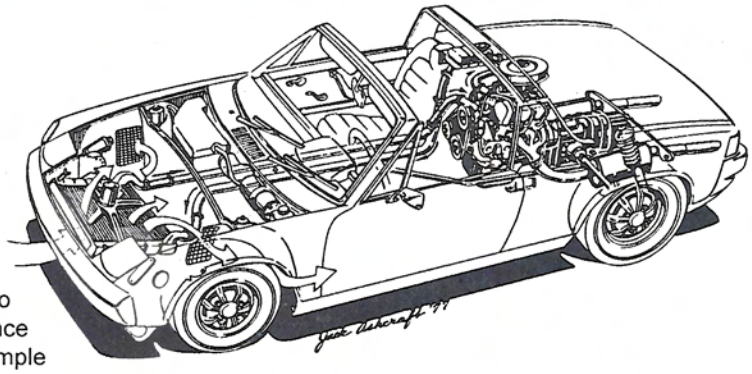
PORSCHE

356 SERIES PORSCHE

These early model Porsches use the same basic adapter kit as the 6 volt VW. The 356C and some 356B's have a guided release bearing like the 914 and need our special release bearing to be compatable with our beefed 200mm VW clutches. The strength of the 356 trans is similar to the early VW sedan. We have very little feedback on swaps for these vehicles.

914 PORSCHE (901 TRANSAXLE)

Because of its mid-engine design, low cost and feeble stock engine, 914 is the most popular of the Porsche vehicles for engine swaps. Many different engines have been successfully installed in the 914, but the most popular are the Porsche 911, Chev V8 & V6, Buick V6, and the Mazda Rotary.



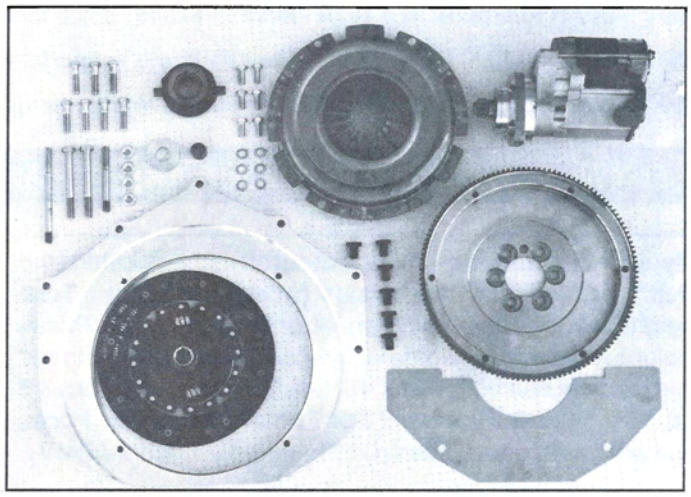
Most of the V6 engines on the KEP list fit in the 914 Porsche as though it was designed for them. The alternator must be relocated on the 3.8 Buick V6. A 327 Chevrolet V8 will fit if (1) the waterpump is remounted alongside the engine, or (2) the trans is moved back 2" and a hole is cut in the fire wall which is covered with a 2" deep box to seal out noise, heat and fumes. The Mazda engine fits with no interference after the thermal reactor is removed. Mounting requires that a simple crossmember be fabricated to support the engine with its stock rubber mounts. The 914 transaxle has proven to be reliable even with engines as large as the 350 Chevy when treated with respect. The major weakness of the 901 transaxle lies in first gear but V8 Porsche owners find it easy to start out in second gear. When using an engine as large as a 327 CID taller gearing is recommended for comfortable highway cruising.

KEP ADAPTERS FOR PORSCHE 901

Kennedy Engineered Products adapter kits for the Porsche 901 transaxle include an aircraft aluminum plate or cast adapter engineered to accurately bolt the engine to the Porsche transaxle and are specially contoured for strength and appearance. We produce two types of kits for the 901 transaxle: 215mm and 9". The major differences lie in the clutch and flywheel configuration. Though similar to kits for the VW, these kits are designed specifically for the Porsche and are not interchangeable. '70 and '71 911 with it's pull type linkage requires the same kit as the 915.

KEP 215mm, 8½" Porsche adapter kits include modification to your Porsche 914 flywheel to fit the engine of your choice with standard or high performance Porsche clutch parts. A good condition steel 914 flywheel core must be supplied. Use KEP 215mm kits for smaller engines, or when lighter weight is beneficial for performance. The stock 2.0 Porsche pressure plate will transmit the 180 ft. lb. of torque equal to a '75 Buick V6. The KEP 215mm Stage II will just handle the 272 ft. lb. of a low compression carburetted 350 Chevrolet. Customer must supply his usable 914 Porsche flywheel for us to modify, or pay a core charge for a good condition or new 914 flywheel.

KEP 9" adapter kits for Porsche include a specially made flywheel designed to use our 9" clutch. KEP 9" kits feature 15% more clutch surface area than the 215mm Porsche and 30% more than the 200mm VW. They also benefit from a thicker clutch surface on the flywheel for more rigidity and heat absorption. These kits are the best available and have made other kits obsolete for larger V6 and V8 adaptions. The durable KEP 9" kit delivers streetability, long life, and excellent clutch holding power.

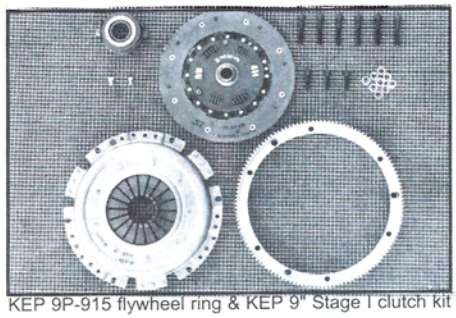


Chev. V8 to 901 kit, shown with 9" clutch and Hi-Torque starter

Whichever kit you buy, you can be sure of easy and accurate bolt up. We provide the pilot bearing, fasteners, and dust shields along with helpful installation instructions. To complete your adaption be sure to order the right Kennedy clutch kit and starter for your swap. Look for our recommendations mentioned in this catalog.

914/6 PORSCHE BUILDERS

KEP offers a special flywheel ring to convert your 911 flywheel to our push type KEP 9" clutch for your 901 transaxle. No more worries about the feeble 215mm clutch. Our special ring fits all 6 and 9 bolt flywheels up to 1986, even with the Porsche motronic fuel injection if specified. Motronic fuel injection engines need their timing ring so they must use the stock flywheel and this ring. If you do not have a stock flywheel, save the cost of a new Porsche flywheel and buy a complete one-piece KEP 9" flywheel, if you are not using the motronic fuel injection.

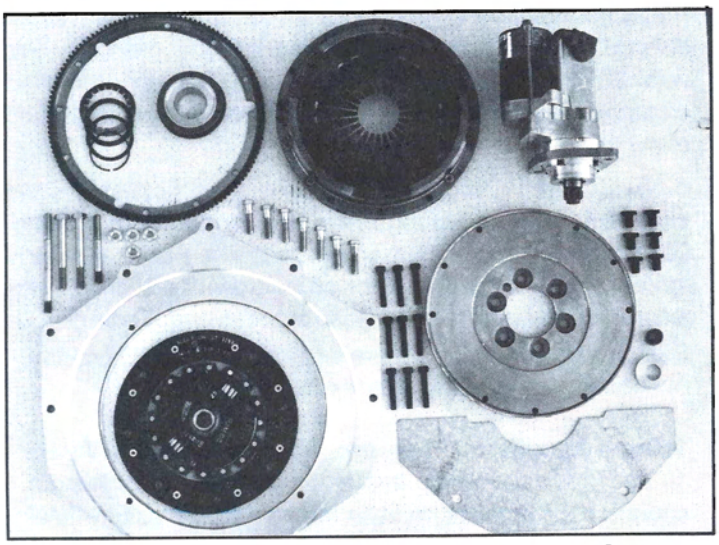


KEP 9P-915 flywheel ring & KEP 9" Stage I clutch kit

911 AND 912 PORSCHE

On 911 and 912 cars, the Buick V6 fits the compartment well, weighs about 20 pounds more than the 911 engine with its heater boxes and gives a noticeable improvement in performance over a 2.7 Porsche at a much lower cost, but it is somewhat rough running. Careful balancing of the pistons, etc. reduces the roughness to very acceptable levels. The Citation V6 is smoother than the Buick with about the same horsepower, dimensions, and weight, but is short on torque. Chevy V8's have been adapted to the 911, but the fit is tighter than the 914 and the engine adds too much weight to the rear end. The Mazda Rotary engine works well in the Porsche 911. The Rotary is about as smooth as the 911 and performance is comparable to the smaller Porsche engines. A rear engine mount must be fabricated from tubing at least $1^1/_2$" by .090 thick wall. The radiator necessitates gas tank modification.

Up to 1972 the 911/912 used the 901 transaxle. From 1970–1971 Porsche used a pull type clutch (225mm). In 1972 Porsche changed to the 915 transaxle with a pull type clutch. We consider the 915 transaxle to be superior in strength to the Pantera ZF. It is less expensive and more available than the ZF and is therefore a good option for V8 powered Kit Cars. The ring and pinion can be flipped, with some machining, by a competent transaxle rebuilder for mid-engine applications.



Chevy to 915 Adapter kit. Popular in mid-engine Kit Cars. Shown with complete clutch kit & Hi-Torque starter.

KEP 915 adapter kits fit non turbo 911 transaxles from 1970 to 1986 and offer the same quality and durability as other KEP kits. Adapter plates are made of precision machined aircraft aluminum. An all new carbon steel, balanced flywheel engineered by KEP bolts to your engine and accommodates the stock Porsche pull type clutch. The rest of the kit includes a pilot bearing, bolts, dustshields and instructions. A KEP high torque starter should also be considered when ordering, unless you already have the '73 or newer 911 starter.

KEP 930 adapter kits fit turbo transaxles from 1975 to 1988. Strong 4 speed transaxle can be reversed for mid engine with some machining. These use a 240 mm clutch.

KEP G50 adapter kits fit non turbo transaxles 1987 and 1989 and turbo transaxles in 1989. Also G50 turbo and non-turbo from 90 to '96 and Gt2, Gt3. These use a 240mm clutch. The strong G50 5-speed transaxle cannot be used mid-engine without inverting the transaxle upside down which cuts ground clearance by 5".

Be sure to obtain the right clutch parts for your '70 and newer transaxle. The clutch kit consists of not only the proper pressure plate, disc and throwout bearing, but ring gear and fasteners as well. We have tested many different clutches and found, even for some stock V8 applications, the newer stock Sachs parts to be sufficient. You can order top quality new German stock or high performance clutch parts from KEP at competitive prices.

CLUTCHES

KEP 200mm VW PRESSURE PLATES (8")

Our 200mm heavy duty pressure plates have been designed to improve reliability under severe racing conditions. They are made in USA from all new material. They are jig assembled, balanced and tested to our high standards. The result is the best line of VW pressure plates ever made.

This clutch comes in four load ratings. Be careful that you do not order a stronger clutch than you need. Torque capacities using a stock disc are shown below.

STOCK 200mm Listed for comparison. Handles 134 ft. lb. of torque.

KEP 200mm STAGE I Intended to handle any street VW and smaller lower torque engines. Handles 180 ft. lb. of torque.

KEP 200mm STAGE II Works good in high horsepower VW sandbuggies and most other competition VW uses where the driver is determined to either win or break. Handles 220 ft. lb. of torque.

KEP 200mm STAGE III Will handle a low compression 305 CID Chevrolet V8 for street use. Handles 260 ft. lb. of torque.

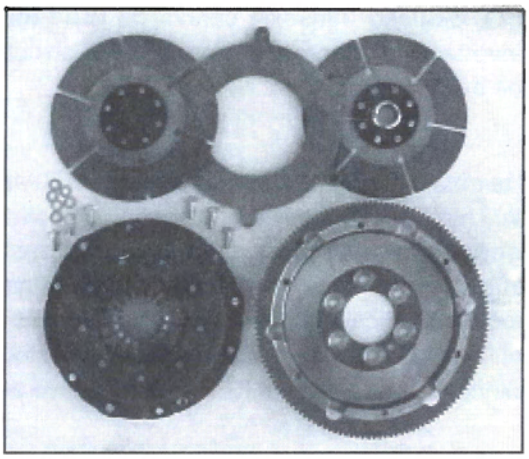
KEP 200mm STAGE IV Used by some drag racers who are running very large VW engines and nitrous and drop the hammer at 8000 RPM using an organic disc. Handles 300 ft.lb. of torque.

If a late style clutch (1971 and later) is ordered, it will be sent without the pad. If you have an early style clutch, you can remove the pad by just unwinding the spiral retaining ring with needle nose pliers.

Clutch Alignment Tools are included with all KEP clutch packages. Individual tools are also available.

25% more torque can be transmitted if a metallic (4 pad or 6 pad) disc is used. It is not recommended for street use.

200mm Double Disc - 100% more torque can be transmitted if a double disc clutch is used. Our new double disc design includes modification to the VW flywheel, a special thinner pressure plate, two thin discs, and a floater plate.



KEP double disc - flywheel mods, pressure plate, discs and floater

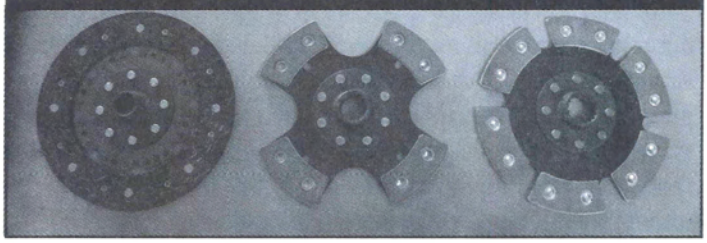
Those with an interest in performance Volkswagens know about Kennedy pressure plates. Though first designed for large engines adapted to Volkswagens and Porsches, they have become the standard for all forms of VW racing. Since 1968 both our experience and reputation have grown. Look to KEP for your VW and Porsche clutch needs.

Ductile iron clutch face, is standard for added strength and to satisfy rule requirements enforced by some racing organizations.

Aluminum clutch face is available with tungston carbide wear surface. Saves 2 pounds of rotating mass. 200mm for VW & 356 Porsche applications. Other applications available, call for information.

The careful use of over-center effect of the diaphragm keeps the pedal pressure low, so the stock linkage can be retained if in good condition. Stage II will allow you to drive in traffic without shifting to neutral to rest your leg.

200 mm DISCS (8")



KEP HD 4 PAD 6 PAD

KEP HD Clutch Disc. KEP's finest 200mm organic disc. Spiral wound to resist high RPM and tougher lining. Recommended for almost all street applications from stock Bug to Chevy V8 adaptions. The extra heavy marcel (wave washer) between the linings provides smooth controlled engagement with heavier pressure plates. Solid center design eliminates spring failure.

4 Pad Clutch Disc. Only for racing applications when intentional slippage would normally burn up an organic lining. Carries more torque than organic. Our 4 Pad is specially lightened to reduce the effect of inertia while shifting. Not recommended for street because of harsh engagement.

Clutch Alignment Tools are included with all KEP clutch packages. Individual tools are also available.

180mm Maximum Pressure Plate (1800 lb) - When 180mm must be used, this is the only clutch to handle power. KEP diaphragm style keeps pedal pressure low. Fits VW thru '66.

KEP 228mm (9") CLUTCH

KEP 228mm CLUTCHES have become the standard of the industry for class 1 off-road racers and V8 or V6 powered kit cars or Porsche 914's. Please specify application when ordering.

KEP 228mm PRESSURE PLATES Designed in conjunction with our KEP 228mm adapter kits, the KEP 228mm pressure plates are made in USA by KEP to exact tolerances. These KEP pressure plates offer the ultimate in holding power, easy operation and reliability. A race proven product.

For VW - fits '76 and newer VW Bus, Vanagon, Mendeola, Hewland DG, Fortin transaxles and Albin using the KEP 228mm flywheel.

For Porsche - Fits all 914 and pre 1970 911 transaxles using the KEP 9" flywheel. Specify Porsche when ordering.

228mm Stock - Stock VW Bus pressure plate. Suitable for engines under 3 liter for street use. Handles 200 ft. lb. of torque.

228mm STAGE I - This pressure plate works well in Porsche 911 powered 914's or V6 camper vans. Enjoy good holding power and easy pedal effort. Handles 223 ft. lb. of torque with stock disc.

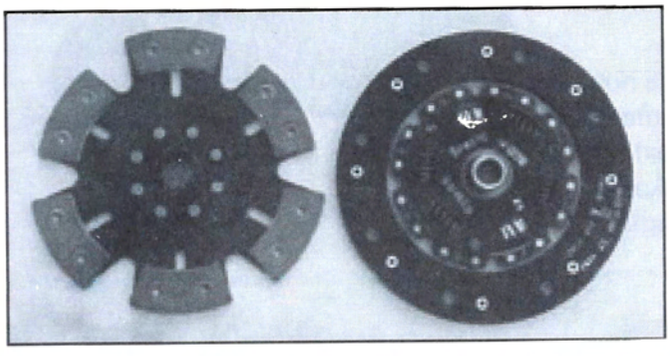
228mm STAGE II - Very popular for use in V8 powered 914's under 400HP. Handles 273 ft. lbs. of torque with stock disc.

228mm STAGE III - This is the one used by winning unlimited class off road racers. Good for street or race applications with lots of power. Handles 378 ft. lbs. of torque with stock disc.

228mm STAGE IV - Handles 420 ft. lbs. of torque with stock disc.

KEP 228mm F & S CLUTCH DISC - New German F & S VW Bus stock disc for street use.

KEP 228mm 6 PAD DISC. Special metallic composite pads are staggered on the disc, to increase the working area and help it take the abuse that others cannot. Used extensively in off-road racing. Increases torque capacity by 25%. Not recommended for street use due to harsh engagement.
KEP NEW 228mm, 9" Double Disc - uses our special 6 pad DD disc.



Stock 228mm disc & 228mm 6 pad disc

PORSCHE CLUTCHES

Porsche 180 & 200mm pressure plates are available with cast iron or aluminum face.

Porsche 215mm pressure plate for 914's and '65-69 Porsche 911 features stronger diaphragm and a full circle torque link system to prevent failure due to excessive torque.

Stock (for comparison). Holds 180 ft. lbs. of torque.

Stage I, 215mm Pressure Plate. Holds 230 ft. lbs. of torque.

Stage II, 215mm Pressure Plate. Holds 270 ft. lbs. of torque.

Porsche 225mm 911 clutch package. Primarily sold as a clutch kit to Kit Car builders complete with installed bearing, ring gear and fasteners. All new genuine German parts. Fits '72 or newer 915 Porsche transaxle. The 360 ft. lb. of torque capacity handles most stock injected 350 Chevrolet V8 engines. For individual parts call for current prices.
KEP Porsche 930, 944 Turbo and '87-89 G50 racing pressure plates are available with aluminum cover for lighter weight, ductile face for durability and higher clamp load for an increased torque capacity. These are not modified factory parts. They are CNC machined then accurately assembled and balanced.

Torque Capacity with stock disc

Clutch	Stock	KEP-Stage I	Stage II
KEP 930 - '75-77	374	550	650
KEP 930 - '78-86	423	530	650
KEP G50 - '87-89	460	550	650
KEP G50 90+	374	550 (Turbo)	650-Race
KEP 944 turbo	378	530	650

240mm KEP Race organic street disc- for increased clamp load, steel back lined. Spring center.
240mm KEP 6 pad spring center disc
915 Ring Gear 130 tooth gear bolts to the 915 pressure plate. Made by KEP for improved quality and lower cost.
930 & G50 Ring Gear is hardened unlike the the factory Porsche.
DG Hewland or Fortin Release Bearing. The smooth flat thrust surface of this bearing is necessary to accommodate all KEP 200mm and 9" pressure plates when used with the DG or Fortin transaxle.
180mm H.D. Pressure Plate (1800 lb) - When 180mm must be used, this is the only clutch to handle power. KEP diaphragm style keeps pedal pressure low. Fits VW thru '66, also Porsche 356A if flywheel depth is correct. Now available with carbide coated aluminum face.

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ALL ALUMINUM 915 PRESSURE PLATE

Our completely new redesigned 915 Porsche Pressure Plate replaces the old RSR plate that is no longer available. Our aluminum face coated with the tungston carbide surface that virtually eliminates wear. This pressure plate weighs 7 lbs. in comparison to the stock cast iron 915 which weighs 14 lbs. This pressure plate comes as a Stage I which handles 420 ft. lbs. of torque or Stage II which handles 480 ft. lbs. of torque. These are rated using a stock disc. Substituting a metallic disc will add 25% to these values.

CALIFORNIA LEGAL 130 HP VANAGON

Installing a '90-94 Subaru Legacy engine in a Volkswagen Vanagon is exempted from Referee inspections because we have passed the tests to earn the CARB executive Order #D-428. It only adds 50 pounds to the vehicle weight. KEP can provide engine adapter kit, engine mount, intake air duct, air filter-silencer, exhaust pipe, catalytic converter with muffler and other items including instructions for modifying the Subaru wiring harness. That is the largest part of the project even if you enjoy working with electric wires. When you ask a wrecking yard for an engine, be certain they understand you need the motor mounts and all the wiring out of the Subaru with its computer, igniter, and relays for the fuel pump and ignition. There is no charge for more information, or send $20 for all the wiring instructions with a 6' long drawing of the harness.

FEATURES OF KENNEDY PRESSURE PLATE

Now 4 evenly spaced torque ratings reaching to a higher torque capacity than before.
Stronger cover produces less flex, crisp shifting, and less wasted pedal travel.
Many small parts eliminated for improved reliability, longevity and strength.
Wide working range so pressure does not change as disc wears.
Based on a proven design but made stronger for big engines.
Smooth shape for slight advantage of less wind drag.
Diaphragm is guarenteed by KEP against breakage .
Affects of heat on diaphragm are greatly reduced.
Drive straps transmit torque in both directions.
No distortion of cover by extremely high RPM.
Jig assembled and tested
Balanced within 0.4 oz inch.
Early style clutch can easily be converted to late style.
Compatible with wide face release bearing (3 finger clutch is not).
Black color is rustproof and durable. This identifies it as something special so your mechanic will not throw it out during your next engine overhaul.
Clutch alignment tools are included with all KEP clutch packages.
Contact face is high tensile low alloy cast iron alloy for strength and stability.
Ductile iron face to meet race track rules.
Fully rebuildable by KEP at reasonable prices.
Made in USA by KEP to exact tolerances.